COVID-19 is Feminine: Grammatical Gender Influences Danger Perceptions and Precautionary Behavioral Intentions by Activating Gender Stereotypes

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Abstract

Gendered languages assign masculine and feminine grammatical gender to all nouns, including nonhuman entities. In French and Spanish, the name of the disease resulting from the virus (COVID-19) is grammatically feminine, whereas the virus that causes the disease (coronavirus) is masculine. In this research, we test whether the grammatical gender mark affects judgments. In a series of experiments with French and Spanish speakers, we show that grammatical gender affects virus-related judgments consistent with gender stereotypes: feminine- (vs. masculine-) marked terms for the virus lead individuals to assign lower stereotypical masculine characteristics to the virus, which in turn reduces their danger perceptions. The effect generalizes to precautionary consumer behavior intentions (e.g., avoiding restaurants, movies, public transportation, etc.) as well as to other diseases, and is moderated by individual differences in chronic gender stereotyping. These effects occur even though the grammatical gender assignment is semantically arbitrary.

Keywords: COVID-19, risk perceptions, gender, stereotypes, linguistics, gendered language, cross-cultural research.

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In May 2020, the Académie Française, the official authority in charge of regulating the French language, reminded French speakers that COVID-19 is feminine. By this they did not mean that the disease had feminine characteristics, nor were they suggesting any gender disparagement. They simply meant that in French, the acronym for the disease, COVID-19, takes the feminine grammatical gender (*la COVID-19*). Unlike English, which does not assign gender to nonhumans, French is a gendered language, and thus assigns either the masculine (*le*) or feminine article (*la*) to all nouns. Remembering that COVID-19 is feminine may be particularly confusing because the umbrella term for the virus that causes the disease, coronavirus, takes the masculine gender mark (*le coronavirus*).

In this research, we investigate the question of whether the coronavirus and COVID-19 are grammatically masculine or feminine matters. More specifically, does referring to the virus as gendered affect consumers' virus-related judgments? On the one hand, there is ample reason to think that it should not. The assignment of grammatical gender to nonhumans is typically semantically arbitrary (Maciuszek & Świątkowska, 2019), and gender marks of nonhuman nouns have nothing to do with the qualities of the objects (e.g., in French, beard (*la barbe*) is feminine, whereas make-up (*le maquillage*) is masculine).

On the other hand, despite arbitrariness of its assignment, numerous studies have shown that grammatical gender can act as a perceptual cue that connotes femininity and masculinity (Gentner & Goldin-Meadow, 2003). The presence of gender markers for nonhumans directs attention to gender distinctions and makes them more salient (Boroditsky et al., 2003), and these processes occur nonconsciously (Boutonnet et al., 2012). For example, Spanish and French speakers who were asked to assign male and female voices to inanimate objects tended to classify based on grammatical gender (Sera et al., 2002). In another study

more directly related to the current research, German- and Spanish-speaking participants rated

objects as more potent when they took the masculine grammatical gender compared to the

feminine gender (Konishi, 1993). Thus, grammatical gender influenced perceptions consistent

with gender stereotypes.

If grammatical gender of a nonhuman entity activates stereotypical gender

perceptions, then it may affect downstream judgments related to it. More specifically, we

propose that grammatical gender may influence the way the coronavirus disease is perceived,

and in particular, judgments of how dangerous the virus or disease is. Compared to men,

women are perceived as weaker and more passive (Abele, 2003; Fiske et al., 2002), whereas

compared to women, men are perceived as more violent, aggressive, and destructive (Eagly &

Steffen, 1986; Rudman et al., 2001). Thus, if the feminine grammatical gender activates

gender stereotypical perceptions (weaker, more passive, etc.), it may lead to perceptions that

the virus or disease is less dangerous, as well as lower intentions to engage in precautionary

behaviors to avoid contracting the disease. There is some indirect evidence consistent with

this reasoning. Using archival data, Jung et al. (2014) showed that hurricanes with feminine

names caused more deaths than hurricanes with masculine names. Although the underlying

process was not tested, the authors proposed that the effects occurred because the feminine-

named hurricanes were considered less risky because of gender-stereotypical associations,

resulting in less preparedness for potential negative consequences. However, it is also

important to note that the archival results have been strongly contested (Christensen &

Christensen, 2014; Malter, 2014; Smith, 2016).

In the current research, we test the proposition that activating thoughts about the virus

using the feminine (vs. masculine) grammatical gender will lead to gender-stereotypical

perceptions of the virus (weak, passive, etc.), which in turn will lead to lower danger

perceptions. We also expect that grammatical gender will influence precautionary consumer

behavioral intentions, and that the effect of grammatical gender on individuals' stereotypical

judgments about the virus will be stronger for individuals who hold strong (vs. weak) gender stereotypes.

Our research makes several contributions. First, we extend previous linguistic research (Konishi, 1993) showing that grammatical gender influences perceptions of masculinity and femininity in gender-stereotypical ways by showing that these perceptions influence downstream judgments (perceptions, behavioral intentions). To our knowledge, this is the first research to show such downstream consequences, suggesting that the effects of grammatical gender on gender-stereotypical perceptions happen spontaneously, rather than only when the perceptual judgments are explicitly elicited (cf. Konishi, 1993; Sera et al., 1994). Second, we extend the findings of Jung et al. (2014), showing the effects of name gender on risk perceptions by explicating the underlying process, demonstrating the generalizability of the effect, and with a more subtle activation of gender stereotyping (grammatical gender). Finally, we contribute to research on the intersection of language and consumer behaviour (Pogacar et al., 2018) by showing that in gendered languages, although grammatical gender of nonhuman nouns is an irrelevant contextual cue, it nevertheless affects consumer judgments by activating gender stereotypes.

We tested our propositions in a series of experiments with native French and Spanish speakers. Studies 1a-1c tested whether grammatical gender of the virus or disease affects danger perceptions and precautionary consumer behavioral intentions. Study 2 tested whether the findings generalize to diseases other than COVID-19. Studies 3 and 4 tested the process and theoretically relevant boundary conditions.

All participants provided informed consent, and we analyzed the data only after all measures had been collected. We only excluded participants based on a priori rules (see MDA, Part 2 for details). We measured mood and demographics in all studies, but their inclusion as covariates did not materially affect the results, and participant gender did not interact with grammatical gender (MDA, Part 2). All studies were conducted in the

participant's native language. All raw data and stimuli are posted at https://osf.io/9437y (Mecit et al., 2021).

Study 1

Study 1 tested the hypothesis that activating thoughts about the virus using the feminine (vs. masculine) gender mark will lead to lower perceptions of danger and lower intentions of taking precautions to avoid contracting the virus in potential consumption situations. We tested this hypothesis in three separate studies (1a–1c) that were designed to address issues of generalizability and rule out alternative explanations. We began data collection in May 2020, when France and Spain were currently under their first prolonged lockdown (see MDA, Part 2 for dates). Thus, we measured future rather than current danger perceptions to avoid possible ceiling effects due to the overwhelming and devastating data coming in about the pandemic.

The procedure and design of the studies were identical except for sample composition and the manipulation of grammatical gender. Sample details, along with descriptive results, are shown in Table 1 for all studies (see also MDA, Part 2). For each language of administration, we restricted participants to native language speakers.

Method

Design and Procedure

The experiments used a one-factor (grammatical gender: masculine, feminine) between-subjects design, with random assignment to conditions. Participants were told that they would be participating in a short study about the public's reactions to the recent pandemic.

Manipulations. Grammatical gender was manipulated via the study instructions and questions. For Study 1a (French) and Study 1b (Spanish), in the masculine grammatical gender condition, the instructions and the questions referred to *le* (Study 1a) or *el* (Study 1b)

coronavirus, and in the feminine gender condition they referred to *la COVID-19*. These are

the correct usages for the grammatical gender, and thus are the most ecologically valid. In

Study 1c (French), to control for potential confounds related to the different words

(coronavirus vs. COVID-19), we manipulated grammatical gender by whether the instructions

and questions referred to *le COVID-19* or *la COVID-19*. Although the masculine form for

COVID-19 (*le COVID-19*) is grammatically incorrect, French speakers more often than not

mistakenly use it (see MDA, Part 7 for examples). Thus, the manipulation also has ecological

validity. In addition, we also conducted an additional study in English with native English

speakers, to address the same confound issues (MDA, Part 3).

   Measures. We measured precautionary consumer behavior intentions with six

questions concerning future consumption behavior likely to be impacted by the coronavirus

(likelihood of eating at a restaurant soon, traveling by plane, etc.), and measured future danger

perceptions of the virus with five questions (how long will the virus remain dangerous, how

likely it is that there will be a second wave, etc.). Factor analyses indicate that the perceptions

and intention measures generally load on distinct factors, although the pattern structure varied

across studies (MDA, Part 4). We created composite measures of behavioral intentions and

danger perceptions (see MDA, Part 5 for alphas). Participants then answered an attention

check question and provided demographic and mood information.

Results

   Our hypotheses were supported in all three studies (Table 1). French participants

(Study 1a) in the feminine condition ($M_{feminine}$=4.71, $SD_{feminine}$=1.20) thought that the virus

would be less dangerous in the future compared to those in the masculine condition

($M_{masculine}$=5.14, $SD_{masculine}$=1.06; $t(145)$=2.348, p=.020, d=0.391), and also intended to be less

cautious in their future behaviors ($M_{feminine}$=4.07, $SD_{feminine}$=1.22 vs. $M_{masculine}$=4.56,

$SD_{masculine}$=1.24; $t(145)$=2.416, p=.017, d=0.398). Spanish participants (Study 1b) showed the

same pattern of results for danger perceptions ($M_{feminine}$=5.37, $SD_{feminine}$=0.94 vs.

$M_{\text{masculine}=}$=5.71, $SD_{\text{masculine}}$=0.85, $t(149)$=2.342, p=.020, d=0.381), and precautionary

intentions (M_{feminine}=4.27, SD_{feminine}=1.14 vs. $M_{\text{masculine}}$=4.75, $SD_{\text{masculine}}$=1.17 $t(149)$=2.566,

p=.011, d=0.410. Finally, Study 1c with French participants (*la COVID-19* vs. *le COVID-19*)

replicated the results for danger perceptions (M_{feminine}=5.02 SD_{feminine}=1.07 vs. $M_{\text{masculine}}$=5.35,

$SD_{\text{masculine}}$=0.75; $t(148)$=2.176, p=.031, d=0.359), and precautionary intentions (M_{feminine}=4.08,

SD_{feminine}=1.12 vs. $M_{\text{masculine}}$=4.51, $SD_{\text{masculine}}$=1.05; $t(148)$=2.411, p=.017, d=0.396).

Discussion

The results of Studies 1a–1c provide converging evidence that grammatical gender

influences perceptions of danger and intentions to engage in precautionary consumer

behavior. Study 1b with Spanish participants shows that the effects are not specific to French,

and Study 1c provides further evidence in support of grammatical gender effects by

demonstrating the effects holding the name constant (*la* vs. *le COVID-19*).

Study 2

Study 2 tested whether the results of the previous studies generalize to diseases other

than COVID-19. To do so, we constructed a set of actual diseases, half of which take the

masculine gender mark in French and half take the feminine gender mark, and had

participants rate their severity and fatality. The two gender-marked subsets did not differ in

terms of actual severity and fatality (MDA, Part 6). We expected that French participants

would judge the feminine-gender-marked set to be less dangerous than the masculine-marked

set, consistent with the previous studies. However, given that English does not grammatically

mark gender, we expected that the danger judgments would not differ for the English

participants.

Method

Participants and Design

Participants were either French and native French speakers (n=100) or English and native English speakers (n=100) who were randomly assigned to conditions in a 2 (grammatical gender: masculine, feminine)×2 (native language: French, English) mixed design, with language as a between-subjects factor and grammatical gender as a within-subjects factor.

Procedure and Measures

In a study ostensibly about judgments concerning different diseases, participants evaluated the severity and the fatality of 18 different diseases and health conditions, 9 of which took the feminine grammatical gender (e.g., tuberculosis, malaria) and 9 of which took the masculine grammatical gender in French (e.g., diabetes, tetanus; MDA, Part 1). We averaged the severity and fatality ratings for each disease in the respective set to create composite measures of danger for the feminine ($α$=.85) and masculine ($α$=.84) disease sets. Participants then provided demographic and mood information.

Results

A repeated measures ANOVA revealed that only the interaction was significant, $F(1,198)$=94.67, $p<.001$, $η^2$=.323. As expected, French speakers judged the set of feminine-marked diseases (M=4.74, SD=0.78) to be less dangerous than the masculine-marked set (M=5.15, SD=0.67; $t(99)$=9.262, $p<.001$). However, English speakers unexpectedly judged the feminine set (M=4.75; SD=0.66) to be more dangerous than the masculine set (M=4.55, SD=.59; $t(99)$=-4.511, $p<.001$), even though there were no gender cues for English participants. Although the masculine and feminine disease sets did not differ in objective risk, this reversal may have occurred because risk judgments were based on factors other than objective risk (e.g., accessibility; Lichtenstein et al., 1978). Regardless, the pattern of the interaction is consistent with our theorizing.

Study 3

Study 3 tested whether stereotypical judgments about the virus mediate the effect of grammatical gender on danger perceptions. We also tested a theoretically relevant boundary condition. We expected that chronic gender stereotypes would moderate the mediation effect, such that the effects of grammatical gender on stereotypical judgements about COVID-19 would be stronger for those who hold stronger gender stereotypes (moderation at path a). To demonstrate generalizability, we measured current danger perceptions in Study 3, given that the study was conducted when many of the pandemic-related restrictions had been lifted (January 2021).

Method

Participants and Design

Participants were 305 native French speakers who were randomly assigned to conditions in a one-factor (grammatical gender: masculine, feminine) between-subjects design, with chronic gender stereotyping as a measured moderator.

Procedure and Measures

The manipulation of grammatical gender was the same as in Study 1c (*le* vs. *la COVID-19*). Participants first answered five questions concerning their current danger perceptions about COVID-19 (e.g., how threatened do you feel, how difficult is it to eradicate). Next, following a filler task designed to clear working memory (solving 15 anagrams), we measured their stereotypical judgments about COVID-19 by having them rate COVID-19 on a set of four bipolar adjectives adapted from previous studies on gender stereotypes (e.g., weak/strong, passive/aggressive; Konishi, 1993; Rudman et al., 2001). The danger perceptions (α=.71) and stereotypical judgments (α=.90) loaded on distinct factors (MDA, Part 4).

Participants then answered an attention check question, followed by a 24-item gender stereotypes questionnaire designed to assess individual differences in gender stereotyping.

The questionnaire asked how typical it would be for men and women to each possess 12 different characteristics that are typical and atypical of each gender (e.g., strong, gentle). We calculated typicality ratings by subtracting inconsistent gender stereotypes from consistent ones for each gender, and then created composite measures of gender stereotyping tendencies by averaging the relative typicality ratings for men (α=.86) and women (α=.89), with higher scores indicating greater traditional gender stereotypes (Hentschel et al., 2019; Ruble, 1983; see MDA, Part 1 for calculation details). Finally, participants provided demographic and mood information.

Results

Gender Stereotypical Judgments and Danger Perceptions

As predicted, participants in the feminine condition (*M*=4.43, *SD*=1.06) perceived COVID-19 to be less dangerous than did those in the masculine condition (*M*=4.78, *SD*=0.94); $t(300)$=3.026, *p*=.003, *d*=0.348). Participants in the feminine condition (*M*=2.93, *SD*=1.26) also associated COVID-19 with more stereotypical feminine characteristics than did those in the masculine condition (*M*=2.45, *SD*=1.10; $t(300)$=-3.204, *p*=.002, *d*=0.368). Regression analyses further revealed that the predicted grammatical gender $\times$ chronic gender stereotyping interaction was significant, both for gender-stereotypical judgments (β=0.56, *SE*=0.16, *p*<.001; Figure 1a) and danger perceptions (β=-0.39, *SE*=0.12, *p*<.001; Figure 1b). Finally, the manipulation of grammatical gender did not influence the chronic gender stereotyping measure (*p* = .36).

Mechanism

We tested for moderated mediation using Hayes' (2017) PROCESS Model 7 with 5,000 bootstrapping re-samples (see MDA, Part 6 for tests of additional models). The moderating effect of chronic gender stereotyping on the relation between grammatical gender and gender stereotypes about the virus was significant (β=0.56, *SE*=0.16, *p*<.001). Gender

stereotypes about the virus also significantly influenced current danger perceptions (β=-0.46, SE=0.04, p<.001). Controlling for gender stereotypical judgments about the virus, the direct effect of grammatical gender on danger perceptions is not significant (p=.169). Probing further, at the mean level of the moderator (chronic gender stereotyping), the effect of grammatical gender on danger perceptions is mediated by stereotypical judgments about COVID-19 (β=-0.21, SE=0.07, 95% CI=[-0.35, -0.08]), and as predicted, the effect is stronger for participants who hold stronger gender stereotypes (1 SD above the mean; β=-0.45, SE=0.11, 95% CI=[-0.67, -0.23]) compared to those who hold weaker stereotypes (1 SD below the mean; β=0.02, SE=0.09, 95% CI=[-0.15, 0.20]), the latter of which is not significant (Figure 1a).

Study 4

Study 4 tested whether stereotypical judgments about the virus explain the effect of grammatical gender by manipulating the process. If the effects occur because grammatical gender influences gender-stereotypic perceptions, then reducing gender stereotyping should attenuate the effect. We tested this hypothesis by priming a counter-stereotypical gender mindset (Blair et al., 2001). We also used a new, expanded measure of gender stereotypes about the virus that included more items, and we changed the procedure slightly by asking them to consider COVID-19 as a person to make the use of the new items (e.g., gentle, kind) more plausible. Finally, we measured precautionary behavioral intentions with new measures that are more current.

Method

Participants and Design

Participants were 402 native French speakers who were randomly assigned to conditions in a 2 (grammatical gender: *le COVID-19*, *la COVID-19*)×2 (counter-stereotypic mental imagery: yes, no) between-subjects design.

Procedure and Measures

Participants were told that they would be participating in two different studies, purportedly about social perception and their reactions to the recent pandemic. As part of the first study, participants first answered an open-ended question that served as the manipulation of a counter-stereotypic mental imagery. Participants in the counter-stereotypic condition were asked to describe what a strong woman is like, why she is strong, and what she is capable of doing, whereas participants in the control condition were asked to describe what a vacation in Corsica is like, how the place looks, and what people do there (Blair et al., 2001).

Next, as part of the second, unrelated study, participants were provided with a brief description of the French government's measures against COVID-19 for the next four weeks concerning the third wave, and were asked to answer a series of questions about their behaviors during this four-week period and perceptions concerning COVID-19. The manipulation of grammatical gender was the same as in the previous study: The instructions and the questions referred to either *le COVID-19* (masculine) or *la COVID-19* (feminine). Participants first answered four questions concerning their precautionary behaviors related to COVID-19 (e.g., increase their online shopping to decrease face-to-face contact, buy masks that provide extra security, etc.), completed a filler task similar to Study 3, and then completed items that measured gender stereotypical judgments about COVID-19 by having them rate COVID-19 on a list of 12 adjectives (e.g., aggressive, mean, submissive, kind; see MDA, Part 1). The behavioral intentions (α=.74) and stereotypical judgements (α=.84) loaded on distinct factors, and we computed composite measures, with higher scores indicating greater precaution and greater stereotyping. Participants then answered an attention check question, and provided demographic and mood information.

Results

Precautionary Behavioral Intentions

A two-way ANOVA revealed a significant main effect of grammatical gender, $F(1,387)=9.91$, $p=.002$, $\eta^2=.025$, with participants in the feminine (vs. masculine) condition intending to be less cautious in their behaviors (Table 1). More important, the predicted grammatical gender × mental imagery interaction was significant, $F(1,387)=6.05$, $p=.014$, $\eta^2=.015$. The effect was significant in the control condition, ($M_{feminine}=4.65$, $SD_{feminine}=1.46$ vs. $M_{masculine}=5.48$, $SD_{masculine}=1.36$; $t(191)=3.953$, $p<.001$), but was eliminated in the counter-stereotypic mental imagery condition ($M_{feminine}=5.09$, $SD_{feminine}=1.49$ vs. $M_{masculine}=5.19$, $SD_{feminine}=1.40$; $t(196)=0.488$, $p=.625$). In addition, the pattern was consistent with our theorizing: Relative to the control condition, priming a counter-stereotypic mindset significantly increased precautionary intentions ($p = .035$) and reduced stereotypical judgments about the virus ($p < .001$) in the feminine condition, but did not significantly affect intentions and judgments in the masculine condition ($ps > .15$; Table 1).

Mechanism

We tested the moderated mediation model using Hayes' (2017) PROCESS Model 7 with 5,000 bootstrapping re-samples (see MDA, Part 6 for tests of additional models). The moderating effect of mental imagery (counter-stereotypic vs. control) on the relation between grammatical gender and stereotypes about the virus was significant ($\beta=0.74$, $SE=0.19$, $p<.001$). Stereotypes about the virus also significantly influenced precautionary behavioral intentions ($\beta=-0.75$, $SE=0.07$, $p<.001$). Controlling for stereotypical judgments about the virus, the direct effect of grammatical gender on danger perceptions is marginally significant ($p=.08$). Probing further at the different levels of the moderator, the indirect effect was significant in the control condition ($\beta=-0.51$, $SE=0.12$, 95% CI=[-0.77, -0.28]) but not in the counter-stereotypic mental imagery condition ($\beta=0.05$, $SE=0.11$, 95% CI=[-0.15, 0.28]).

General Discussion

In this research, we demonstrate how a simple linguistic cue–the grammatical gender–affects both perceptions of danger and intentions to engage in precautionary behaviors. Across a series of experiments, we show that COVID-19 is considered less likely to be dangerous when the disease is marked with the feminine (vs. masculine) grammatical gender, and that the grammatical gender effect also generalizes to other diseases as well. To the best of our knowledge, this research is the first to causally demonstrate such downstream effects of grammatical gender on judgment and decision-making. Moreover, the findings have immediate relevance, as the success of several measures (e.g., social distancing and washing hands) is dependent upon the willingness of individuals to adopt the behaviors, and one determinant of compliance is the extent to which individuals perceive the virus to be dangerous.

We also provide a process explanation of the grammatical gender effects. Previous research has shown that grammatical gender can affect connotations of masculinity and femininity (Konishi, 1993; Sera et al., 1994; for a review, see Gentner & Goldin-Meadow, 2003). We take this research one step further, showing that grammatical gender affects stereotypical judgments about the virus, which in turn are used in constructing judgments about the danger of the virus. Consistent with this mechanism, we further identify individual differences in gender stereotyping as a theoretically relevant boundary condition, such that the effect of grammatical gender on stereotypical judgments related to masculinity and femininity are stronger for people holding stronger gender stereotypes. Thus, our research provides a theoretical mechanism that has potentially important consequences.

Our research has implications for a number of research areas. First, the research contributes to the literature documenting the effects of seemingly irrelevant information on important consumer judgments. Assignment of grammatical gender is arbitrary, and thus should not logically influence judgments; speakers of gendered languages are well-aware that grammatical gender has no meaning for nonhuman entities. Second, our findings extend

research on grammatical gender effects, and contribute to the larger debate as to whether language influences thought (Lucy, 1997; Whorf, 1952). Our research further confirms and extends the findings on the implicit nature of grammatical gender effects (Boutonnet et al., 2012; Cubelli et al., 2011) by showing that grammatical gender can influence judgements and decision-making, even if such information is irrelevant and not explicitly elicited.

Our findings also suggest avenues for future research. For one, although our research focused on specific virus-related judgments, grammatical gender is likely to influence other types of consumer judgments. For example, to the extent that grammatical gender nonconsciously activates gender-related concepts, it may influence judgments of gender-marked brand names and products. Further, to the extent that grammatical gender imparts human-related information (either masculine or feminine), the gender mark of a product (or the absence of gender marks in genderless languages) may influence how consumers interact with products, such as the extent to which they anthropomorphize them.

An additional question is the extent to which our findings generalize to other gendered languages. Our experimental findings show that the effects hold for both French and Spanish. However, French and Spanish are both romance languages and have two grammatical genders. Given that grammatical gender effects are more likely to occur in languages with only two grammatical genders (Maciuszek & Świątkowska, 2019), one avenue for future research is to test the generalizability of the effect in languages with more than two grammatical genders.

One limitation of the current research is that we were unable to show the effects on consequential choice, which was hampered by limitations of the pandemic restrictions. Future research would benefit from such tests, both experimentally and time-lagged studies.

Finally, the effects we show are novel, and the novelty is primarily driven by the novelty of the situation: Two new words are introduced into the lexicon, the words describe

similar things but take different grammatical gender marks, and for one of the words

(COVID-19), speakers often use the grammatical gender incorrectly. We show that a

seemingly irrelevant grammatical cue affects perceptions of danger and intentions to take

precautionary measures. Thus, even though the motivation of Académie Française for urging

proper grammar usage is surely well-intentioned, it may have had unfortunate unintended

consequences.

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Figure 1a

Stereotypical Judgments About the Virus as a Function of Grammatical Gender and Chronic Gender Stereotypes (Study 3)
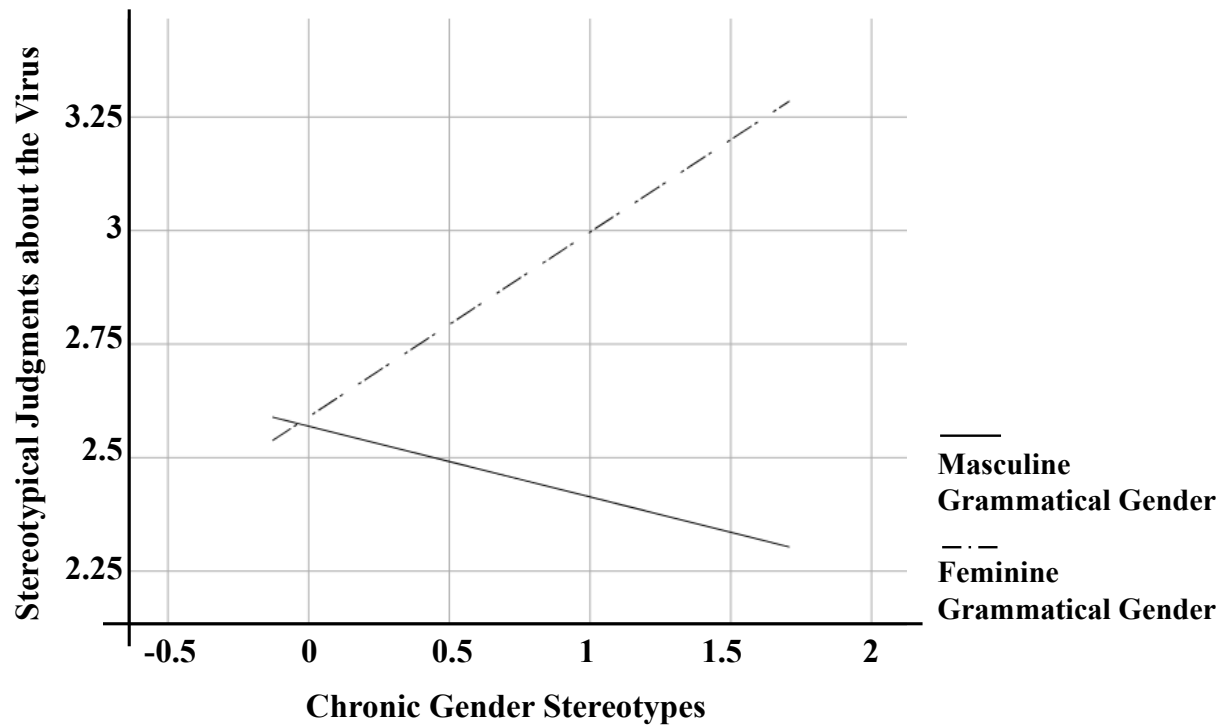
Note. Stereotypical judgments (1 = Masculine, 7 = Feminine). Johnson–Neyman turning point = 0.50. The proportion of participants scoring higher than .50 on chronic gender stereotypes was 57%.

Figure 1b

Danger Perceptions as a Function of Grammatical Gender and Chronic Gender Stereotypes (Study 3)
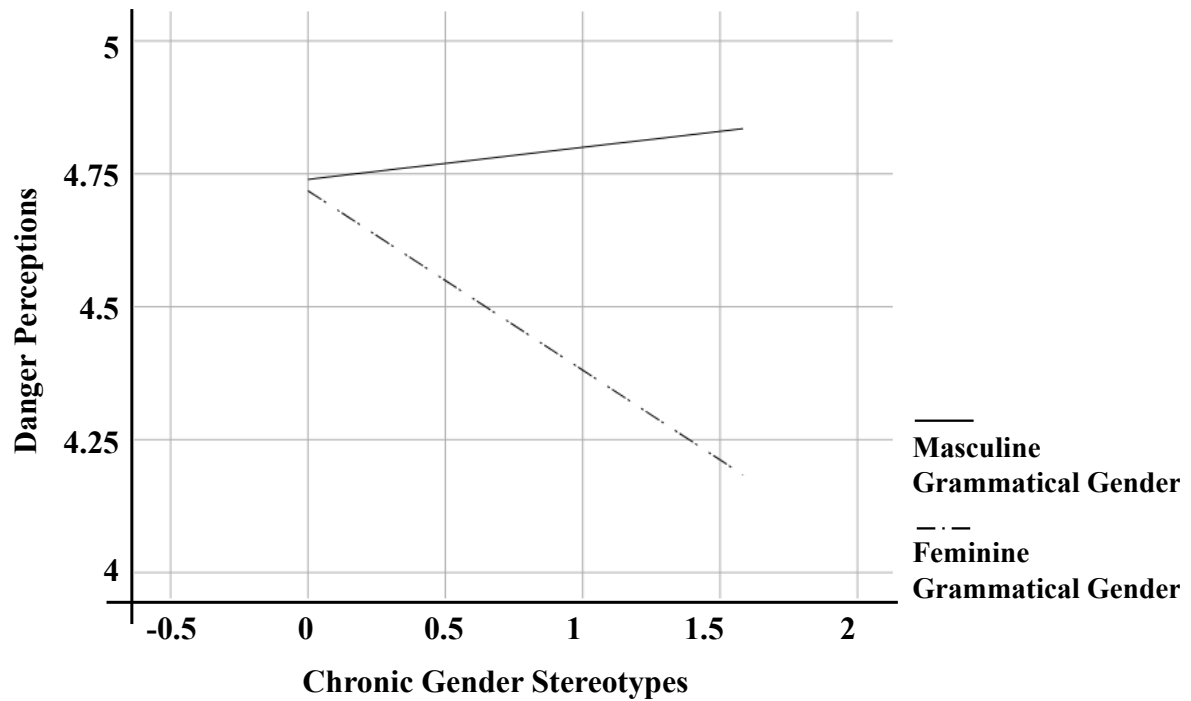
Note. Danger perceptions (1 = Low, 7 = High). Johnson–Neyman turning point = 0.53. The proportion of participants scoring higher than .53 on chronic gender stereotypes was 54%.

Table 1

Methodological Details and Results for All Studies

Study (Sample size)[a]	Sample	Evaluated disease	Future Danger Perceptions[b]		Precautionary Intentions[b]	
			Masculine	Feminine	Masculine	Feminine
Study 1a (N = 155)	French	le coronavirus vs. la COVID-19	5.14 [4.92, 5.36]	4.71* [4.43, 4.99]	4.56 [4.28, 4.85]	4.07* [3.79, 4.36]
Study 1b (N = 152)	Spanish	el coronavirus vs. la COVID-19	5.71 [5.51, 5.90]	5.37* [5.16, 5.58]	4.75 [4.48, 5.03]	4.27* [4.01, 4.53]
Study 1c (N = 153)	French	le vs. la COVID-19	5.35 [5.18, 5.51]	5.02* [4.77, 5.27]	4.51 [4.27, 4.75]	4.08* [3.82, 4.35]

Study (Sample size)[a]	Sample	Evaluated disease	Current Risk Perceptions[c]		Stereotypical judgments about the virus[c]	
			Masculine	Feminine	Masculine	Feminine
Study 2 (N = 200)	French	18 different diseases	5.15 [5.01, 5.27]	4.74*** [4.58, 4.90]	-	-
	English		4.55 [4.43, 4.67]	4.75*** [4.62, 4.88]	-	-
Study 3 (N = 305)	French	le vs. la COVID-19	4.78 [4.64, 4.93]	4.43** [4.26, 4.61]	2.45 [2.28, 2.63]	2.93** [2.69, 3.17]

Study (Sample size)[a]	Sample	Evaluated disease	Precautionary Intentions[b]		Stereotypical judgments about the virus[c]	
			Masculine	Feminine	Masculine	Feminine
Study 4 (N = 402)	French	le vs. la COVID-19	Control Mental Imagery Condition			
			5.48 [5.24, 5.72]	4.65*** [4.32, 4.98]	2.27 [2.14, 2.41]	2.95*** [2.71, 3.19]
			Counter-Stereotypic Mental Imagery Condition			
			5.19 [4.91, 5.48]	5.09 [4.79, 5.38]	2.49 [2.30, 2.68]	2.42 [2.25, 2.59]

[a] Sample sizes do not include data exclusions.

[b]Numbers reflect cell means; items measured along 7-point scales; higher numbers indicate greater perceived future danger perceptions and precautionary intentions. Numbers in brackets represent 95% confidence intervals.

[c]Numbers reflect cell means; items measured along 7-point scales; higher numbers indicate greater perceived current danger perceptions and feminine stereotypical judgements about the virus. Numbers in brackets represent 95% confidence intervals.

For Masculine vs. Feminine contrasts: [*]$p < .05$. [**]$p < .01$. [***]$p < .001$.